

REMARKS

By this Response, Applicants propose to cancel claims 17 and 18 without prejudice or disclaimer of the subject matter contained herein. No claims have been amended or added. Claims 19-20 are now withdrawn. Claims 1-3 and 5-16, 19 and 20 remain pending.

Election/Restriction Under 35 U.S.C. § 121

In the Final Office Action, the Examiner has required restriction under 35 U.S.C. § 121:

- I. Claims 1-10 and 17-18, drawn to a semiconductor device, classified in class 257, subclass 330.
- II. Claims 19-20, drawn to a method of making a semiconductor device, classified in class 438, subclass 259.

The Examiner further indicates that claims 11-16 link inventions I and II. The restriction requirement of the linked inventions is subject to the non-allowance of the linking claim. Upon the allowance of the linking claims, the restriction requirement as to the linked invention shall be withdrawn and any claims depending from or otherwise including all the limitations of the allowable linking claims will be entitled to examination in the instant application. Since applicants have received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, the Examiner indicates that claims 19-20 are withdrawn from consideration as being directed to a non-elected invention.

Responsive to the Examiner's Restriction/Election requirement, applicants confirm the constructive election of Group I, including claims 1-10, 17 and 18. Applicants reserve the right to file a divisional application directed to the non-elected subject matter and do not disclaim any portion thereof.

Rejection Under 35 U.S.C. § 112, First Paragraph

In the Final Office Action, the Examiner rejected claims 1-18 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

It is the Examiner's position that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner asserts that the limitation of a first contiguous barrier layer to a thickness  $X_1$  over said upper surface of said low K dielectric layer within said trench was not disclosed in the originally filed application.

To the contrary, it is respectfully submitted that the subject matter identified by the Examiner is found in the originally filed application at page 8, at least lines 4-17 thereof. This portion of the specification recites "(f)ollowing the formation of the trenches 80, 85, a contiguous liner layer (or barrier layer) is formed in the trenches 80, 85. The liner layer or barrier layer can be formed using atomic layer deposition, physical vapor deposition, or chemical vapor deposition methodologies. Shown in Figure 2(a) is a contiguous liner or barrier layer 70 formed according to an embodiment of the instant invention. In this embodiment a non-conformal barrier layer 70 is formed

in which the thickness  $X_1$  is greater than  $X_2$ . In an embodiment  $X_1$  represents the thickness of the non-conformal layer 70 formed over the upper surface 35 of the low K dielectric layer 20 and  $X_2$  represents the thickness of the non-conformal barrier layer 70 on a sidewall 83 of the low K dielectric layer 20 and  $X_2$  represents the thickness of the non-conformal barrier layer 70 on a sidewall 83 of the trenches”.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-18 under 35 U.S.C. § 112, first paragraph.

#### Product by Process

In the Final Office Action, the Examiner asserts that the language, term, or phrase “... controlled dielectric pore penetration includes one of a starving of reactants used to deposit the barrier layer and increasing a re-sputter component of barrier layer material”, in claims 17 and 18 is directed towards the process of making the trench barrier layer. In response to this assertion by the Examiner, Applicants propose to cancel claims 17 and 18 without prejudice or disclaimer of the subject matter contained therein. Accordingly, the Examiner is requested to withdraw this objection to the claims.

In the absence of any references applied against the claims and in view of the above, it is respectfully submitted that the present application is now in condition for allowance. Withdrawal of all outstanding issues is respectfully requested.

### **CONCLUSION**

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-16, 19 and 20 into condition for allowance. Applicants submit that the proposed cancellation of claims 17 and 18 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application into condition for allowance.

Finally, Applicants submit that entry of the amendment would place the application into better form for Appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references applied against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the

undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 20-0668.

Respectfully submitted,

Dated: July 20, 2007

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